Nursing Grand Rounds: VTE Safety Toolkit

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VTE Safety Toolkit

- Partnership in Patient Safety Grant
- AHRQ (Agency for Healthcare Research and Policy)
- 2-year grant to improve care for patients at risk for or diagnosed with VTE ($600,000)
  - PI: Brenda Zierler, PhD
  - Co-PI: Gene Peterson, MD
- Develop and implement VTE Safety Toolkit
- Today's focus is on prevention of VTE

Project Team

- Research Team
  UW Schools of Nursing; Medicine; Pharmacy; and Medical Education and Biomedical and Health Informatics
- Clinical Team
  UW Medical Center (UWMC), Harborview Medical Center (HMC)

Interdisciplinary Research Team

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Why Study VTE?

- Epidemiology of VTE
  - VTE encompasses deep vein thrombosis (DVT) and pulmonary embolism (PE)
  - Most common preventable cause of hospital death
  - 900,000 Americans suffer VTE each year
    - 400,000 DVT
    - 500,000 PE
Epidemiology of VTE

- In 300,000 patients, PE proves fatal
- 3rd most common cause of hospital-related deaths in the United States
- Post-thrombotic syndrome will be seen in 800,000 pts.
  - 7% of these individuals will have a severe form of the problem and will become disabled
- Survivors are at risk for recurrence of PE
  - Pulmonary hypertension develops in approximately 30,000 patients who survive their PE

Epidemiology of VTE

- 1 of 20 hospitalized medical patients will suffer a fatal PE if they have not received appropriate thrombosis prophylaxis
- 50% of the 2 million cases of DVT yearly are “silent”

Clinical and System Problem

- Prophylaxis (pharmacologic and mechanical) is one component of prevention
- At least 50% of patients diagnosed and hospitalized with DVT have NOT received preventive treatment

Risk Factors for VTE

- Determine who should receive prophylaxis
- Every patient at UWMC should be assessed for risk of developing VTE
- Understand contraindications to pharmacologic prophylaxis (heparin, warfarin)
- Offer mechanical prophylaxis when pharmacologic prophylaxis is not safe

VTE Safety Toolkit- What is It?

- Evidence-based algorithms, guidelines, recommendations, and order sets for preventing, diagnosing, treating and educating patients and providers about VTE

VTE Safety Toolkit- Components

- Risk Assessment Tool
- VTE Prophylaxis
- DVT Diagnostic Algorithm
- PE Diagnostic Algorithm
- HIT Assessment
- Hypercoagulable Workup
- VTE Treatment Pathway
- DVT Treatment Order Set
- Vascular Lab Requisition
- Patient Education (prevention & treatment)
Progress To Date

- **AIM 1:** Improve the assessment of risk factors for VTE upon admission and discharge
  - **Expected outcome:** Increase the percentage of hospitalized patients whose risk factors for VTE are assessed and documented upon admission and discharge.
  - **VTE Risk Assessment Tool**

Progress To Date

- **AIM 2:** Improve the use of prophylaxis
  - **Expected outcome:** Increase the percentage of hospitalized patients without contraindications who receive prophylaxis.
  - **Prophylaxis Guidelines**
  - **Patient Education for prophylaxis**

Toolkit Development

- How will tools be used at UWMC
  - Web-based tools (designated Website)
    - linked to AHRQ
    - linked to National Quality Forum
    - linked to Center for Health Sciences Interprofessional Education and Research
    - SOM intranet/UW SOM website
  - Interactive training (case studies)
  - mandatory training - core competencies

Steps in Implementation

- **Training Modules** - first one is prototype
- **Objectives**
  - Test interactive cases as educational intervention
  - Provide certification to providers
Study Design

Log-in
Experimental
Pretest on VTE prevention
Didactic Lecture
Interactive Case Studies
Posttest on VTE Prevention

Control

Didactic Lecture
Interactive Case Studies
Certification on VTE Prevention

Posttest on VTE Prevention

VTE, Venous Thromboembolism

Log-in

USERNAME
PASSWORD
NEW USER
SUBMIT

Pretest on VTE prevention

VTE Mortality and Morbidity
Venous thromboembolism (VTE) including deep vein thrombosis (DVT) and pulmonary embolism (PE) causes more deaths in the US per year than breast cancer, AIDS and highway fatalities combined.

75% of these deaths are preventable with appropriate VTE prophylaxis.

Training in VTE prophylaxis is required to provide patient care at the University of Washington Medical Center and at Harborview Medical Center.

Patients at Risk for VTE
Almost every hospitalized patient is at risk for VTE.
Risk factors for VTE are present in most hospitalized patients [pre to risk factor assessment]
All patients should receive VTE prophylaxis, unless prophylaxis is contraindicated or the patient is already fully anticoagulated.

Patients Who Do Not Need Prophylaxis

Almost every hospitalized patient should receive VTE prophylaxis.

Those who do NOT need VTE prophylaxis include patients who are fully anticoagulated with:
- Warfarin: INR = 2.0
- Heparin: aPTT = 80
- Low molecular weight heparin
- Direct thrombin inhibitors (bivalirudin, lepirudin, argatroban)

Focus the initiation (initialization)

As long as patients remain fully anticoagulated with these medications during hospital admission, additional VTE prophylaxis is not required.

Although rare in the hospital setting, low risk patients who are fully anticoagulated may not need VTE prophylaxis.
Options for VTE Prophylaxis

Pharmacologic prophylaxis
Unfractionated heparin
Low molecular weight heparin

Mechanical prophylaxis
Sequential pneumatic compression
Graduated compression stockings (minimum compression: 20-40 mmHg)

VTE Prophylaxis in Special Populations

Pharmacologic prophylaxis for VTE must be adjusted in some special populations

- Normal dose: enoxaparin 40 mg once daily
- Renal impairment (Cr > 30): decrease enoxaparin to 30 mg once daily
- Mortal obesity (BMI > 50): increase enoxaparin to 40 mg once daily
- Major orthopedic surgery: heparin 5,000 U subcutaneously (INR 1.5-2.5 appropriate)
- Trauma and/or burn injury: use enoxaparin 300 mg IV daily
- Lumber puncture, spinal: follow “Guidelines for Anticoagulation in Neurologic Disorders” in patients, especially pediatric and pediatric patients

Contraindications to Pharmacologic Prophylaxis

- Active bleeding (including hemorrhagic stroke)
- Heparin-induced thrombocytopenia
- Hypersensitivity to heparin

Case 1

Hgb: 12
Platelets: 102
INR: 2.2
Creatinine: 0.9

Options:

- Option 1
- Option 2
- Option 3

Continue
Stumbling Blocks
- Lack of integrated clinical information system
- Lack of resources to create system-wide database for collecting QI data
- Lack of Uniform Training (providers)
- Billing and coding problems

Future Issues & Challenges
- Future Directions
  - Develop training modules for all VTE Toolkit Components
  - Track referring provider participation with care of VTE patient
  - Track utilization of toolkit by providers and patients
  - Update evidence on toolkit components

Questions